

I claim:

1. A closure for a container that is adapted to hold a product for dispensing, comprising:

(a) a cap member mountable to a container, said cap member having a product outlet passage; and

5 (b) a valve body disposed for longitudinal movement within said outlet passage between an open position to permit flow of product through said passage from said container and a closed position to prevent flow of product through said passage, said valve body being selectively removable from said outlet passage.

2. The closure of claim 1, wherein said valve body includes at least one stop member for limiting movement of said valve body within said product outlet passage between said open and closed positions.

3. The closure of claim 1, wherein said cap member includes a sleeve defining said outlet passage, and wherein said valve body is disposed within said sleeve for longitudinal movement therealong between said open and closed positions and is radially deformable for selective removability from said outlet passage.

4. The closure of claim 3, wherein said valve body includes at least one stop member disposed thereon for limiting the longitudinal movement of said valve body within said sleeve between said open and closed positions, and wherein said sleeve includes a guide member and a longitudinal slot alongside said guide member, said stop member being seated within said slot to both limit the longitudinal

movement and restrict rotational movement of said valve body within said sleeve.

5 5. The closure of claim 4, wherein said valve body includes a pair of said stop members in the form of ears disposed on opposite sides of said valve body, and wherein said sleeve includes a pair of guide members defining a pair of oppositely disposed slots each sized to respectively engage one of said ears to define and limit the longitudinal movement of said valve body between said open and closed positions.

5 6. The closure of claim 4, wherein said stop member projects radially outwardly from said radially deformable valve body and includes a chamfered surface in the form of a wedge adapted for engagement against one said guide member in response to selective rotational force imposed on said valve body in its open position to assist in deforming said valve body radially inwardly.

5 7. The closure of claim 3, wherein said cap member further includes a central post extending axially along of said sleeve, and wherein said valve body includes a central cavity and a closed outer end having an aperture therein, said valve body being mountable for longitudinal movement along said post, said post being engaged within said aperture when said valve body is in said closed position and disengaged with said aperture when said valve body is in said open position.

8. The closure of claim 7, wherein said valve body includes at least one stop member disposed thereon for defining the longitudinal

movement of said valve body along said post, wherein said sleeve includes guide members for defining a longitudinal channel within said sleeve for each said stop member, each said stop member being seated within one said channel to both limit the longitudinal movement and restrict rotational movement of said valve body within said sleeve, and wherein said central post includes support elements disposed between said post and said valve body proximate said channels to prevent the axial removal of said deformable valve body from said sleeve while said stop members are disposed within said channels.

9. The closure of claim 7, wherein said deformable valve body includes an open inner end positioned within said sleeve and communicating with the interior of said container to enable said valve body to be radially outwardly deformed by internal pressure within said container to increase the sealing capacity of said valve body in conjunction with increases in the internal pressure of said container.

10. A removable valve member for manually opening and closing a product exit duct communicating with the interior of a fluid container, said valve member comprising a unitary body disposed for longitudinal movement within said duct between an open position to permit flow of fluid through said duct and valve member body from said container and a closed position to prevent flow of fluid through said duct and valve member body, said valve member body being constructed from elastic material to permit selective deformation and removal thereof from said exit duct.

5

11. The valve member of claim 10, wherein said valve member unitary body comprises a tubular element sized and shaped for positioning within said duct, said tubular element having an open first end adapted for positioning within said duct and a substantially closed second end adapted for positioning exterior to said duct, said second end having a central aperture therein for communicating with the interior of the container.

12. The valve member of claim 11, wherein said second end includes a cap sized and shaped for closing the end of said duct when said valve member is in a closed position.

13. The valve member of claim 12, wherein said tubular element includes at least one integrally molded O-ring disposed about the outer surface thereof.

5

14. The valve member of claim 12, wherein said tubular element further includes at least one stop member in the form of an ear projecting radially outwardly from the outer surface thereof and adapted to limit the longitudinal movement of said valve member within said duct between said open and closed positions.

5

15. The valve member of claim 14, wherein each said ear includes a radially disposed outer edge, a pair of upper and lower shoulders defined by said outer edge for limiting the longitudinal movement of said stop member within said duct, a pair of end shoulders for limiting rotational movement of said stop member within said duct, and a chamfered surface extending from one said end shoulder to said outer edge to form a wedge adapted for engagement

against said duct in response to selective rotational force imposed on said end cap when said valve member is in its open position to assist in deforming said unitary valve body radially inwardly.

16. A valve assembly for manually opening and closing a fluid container discharge opening and adapted for disassembly for cleaning purposes, said valve assembly comprising:

(a) a fluid discharge collar enclosing said discharge opening and extending longitudinally with respect thereto, said discharge collar having an outer end opening and an inner end opening;

(b) a shaft extending longitudinally along a central axis of said discharge collar, said shaft having a distal end portion proximate the outer end opening of said collar; and

(c) a detachable valve body disposed for movement along said shaft within said discharge collar between an open valve position to permit flow of fluid product through said discharge opening from said container and a closed valve position to prevent flow of product through said discharge opening, said valve body being selectively removable from said discharge collar.

17. The valve assembly of claim 16, wherein said valve body is constructed from elastic material and is radially deformable for selective detachment from said discharge collar.

18. The valve assembly of claim 17, wherein said valve body includes a central cavity sized and shaped for mounting along said shaft and a closed outer end portion disposed exterior to said collar outer end opening and having a central aperture defined therein, said

5 central aperture being sized and shaped to engage said shaft distal end portion when said valve body is in said closed position.

19. The valve assembly of claim 18, wherein the central aperture of said outer end includes an annular lip member extending inwardly into said central cavity to provide a sealing surface with said shaft distal end portion when said valve body is in said closed position.

20. The valve assembly of claim 16, wherein said valve assembly includes interconnecting members disposed between said discharge collar and said valve body to limit the longitudinal movement of said valve body within said discharge collar and to selectively restrict rotational movement of said valve body within said discharge collar.

21. The valve assembly of claim 21, wherein interconnecting members comprise at least one stop member disposed on the outer surface of said valve body and at least one slot defined in said collar, each said stop member being seated within one said slot with the length of said slot defining the longitudinal movement of said valve body within said collar between said open and closed positions.

22. The valve assembly of claim 21, wherein said valve body is constructed from elastic material, and wherein each said stop member projects radially outwardly from said elastic valve body and includes a surface adapted for engaging said collar in response to selective rotational force imposed on said valve body in its open position to radially compress and deform said valve body for selective detachment from said discharge collar.

23. In a pop-up type valve assembly for manually opening and closing a fluid container including a product exit port and a valve body longitudinally movable relative to said port between an extended open position for fluid discharge and a depressed closed position for fluid containment, the improvement wherein said valve body is constrained for movement between the open and closed positions yet which includes means for selectively disengaging and removing said valve body from said port.

24. The improvement of claim 23, wherein said means comprises said valve body being constructed from elastic material and being radially deformable for selective detachment from said port.

25. The improvement of claim 24, wherein said product exit port is substantially tubular in form having an outer end opening and an inner end opening and includes a shaft extending axially along the centerline thereof, said shaft having a distal end portion proximate the outer end opening of said port, and wherein said valve body includes a central cavity adapted for axial movement along said shaft within said port and a closed outer end portion having a central aperture defined therein, said central aperture being sized and shaped to engage said shaft distal end portion when said valve body is in said closed position and disengage said shaft distal end portion when said valve body is in said open position.

26. The improvement of claim 25, wherein said valve body includes at least one stop member projecting radially outwardly therefrom, wherein said tubular port includes guide members for

5 defining at least one longitudinal slot within said port, each said stop member being seated within one said slot to both limit the longitudinal movement and restrict rotational movement of said valve body within said sleeve, and wherein each said stop includes a surface adapted for engaging a guide member in response to selective rotational force imposed on said valve body in its open position to radially compress and deform said valve body for selective detachment from said discharge collar.

27. The improvement of claim 26, wherein said shaft includes support members disposed between said shaft and said valve body aligned proximate said slots to prevent the axial removal of said deformable valve body from said exit port while said stop members are positioned within said slots.

28. The improvement of claim 26, wherein said fluid container includes a removable top portion which contains said pop-up type valve assembly, and wherein said top portion, said exit port, said shaft and said support members comprise one integral unit.

29. A fluid container comprising an enclosure for containing liquid and a first closure member in the form of a fluid discharge assembly including a selectively removable valve body mounted for movement between an open position to permit flow of liquid from said enclosure and a closed position to prevent flow of liquid through said fluid discharge assembly.

30. The fluid container of claim 29, wherein said container includes a second closure member in the form of a removable container member for filling said enclosure.

31. The fluid container of claim 29, wherein said valve body is radially deformable for said selective removability from said fluid discharge assembly.

32. The fluid container of claim 31, wherein said valve body is constructed from elastic material to permit selective deformation and removal thereof from said fluid discharge assembly.